Revue suisse de Zoologie 106 (2): 285-300; juin 1999

Neotropical Eupariini: New and little known genera and species (Coleoptera: Scarabaeoidea: Aphodiinae)

Zdzisława Teresa STEBNICKA
Institute of Systematics and Evolution of Animals
Polish Academy of Sciences
Sławkowska 17, 31-016 Kraków, Poland

Neotropical Eupariini: New and little known genera and species (Coleoptera: Scarabaeoidea: Aphodiinae). - Three monotypical genera: *Arupaia* gen. n., *Flechtmannia* gen. n. and *Selviria* gen. n. are described; diagnoses for *Iarupea* Mart. and *Lomanoxoides* Stebn. are given and keys to species are provided. *Lomanoxoides selviriaensis* sp. n. and *Selviria matogrossoensis* sp. n. from Brazil are described and illustrated. Six species are transferred from *Ataenius* Har. and *Euparia* St.-Farg. & Serv.: *Arupaia friedenreichi* (Har.) comb. n., *Flechtmannia laticollis* (Petr.) comb. n., *Iarupea attenuata* (Har.) comb. n., *I. serratipennis* (Petr.) comb. n., *Lomanoxoides nigrolineatus* (Hint.) comb. n., *L. tesari* (Balth.) comb. n. and *L. thoracalis* (Petr.) comb. n. The following new synonymies are proposed: *Arupaia friedenreichi* (Har.) (=*Iarupea guimaraesi* Mart. syn. n.), *Lomanoxoides tesari* (Balth) (=*Ataenius hrubantovai* Chal. syn. n.) and *Myrmecaphodius proseni* Mart. (=*M. fornicatus* Petr. syn. n.). Comments and notes on relationships are included.

Key-words: Coleoptera - Scarabaeoidea - Aphodiinae - Eupariini- Neotropical Region - Taxonomy.

INTRODUCTION

Previous classifications of most of the euparine species have been based on two principal genera: *Euparia* and *Ataenius*. The genus *Euparia* is exclusively of New World distribution, since the Asian-Papuan-Australian species belong to the other taxonomic units (Stebnicka & Howden 1996, Stebnicka 1998). In 1984, Chalumeau & Howden presented a complete description of the genus *Euparia* wherein they listed three valid species. In addition, they proposed a number of genera to comprise several New World species removed from the genus *Euparia*. Among these genera, the names *Lomanoxoides* and *Iarupoides* were given as nomina nuda. Since that time, no additional classificatory schemes have been proposed for these genera and their allies.

The present contribution is intended to form the framework upon which subsequent generic revisions and keys will be based. Six genera discussed and established

Manuscript accepted 13.10.1998

here come from an area with enormous and little understood diversity of species and need to be made available for inclusion of diverse new species described in the future. Twelve species listed in the present study are very rare in collections, probably due to their inquilinous habits and most probably all of them are associated with various species of ants.

MATERIALS AND METHODS

In addition to the new taxa discussed herein, I examined a large Neotropical material of the following euparine genera: *Ataenius*, *Batesiana*, *Bruchaphodius*, *Lomanoxia*, *Martineziella* and *Phalangochaeta* (Stebnicka, a revision in preparation).

The material studied belongs mostly to the Museum d'histoire naturelle in Geneva (MHNG) where the holotypes of new species are deposited and to the following institutions and private collections: CFC - Carlos Flechtmann Collection, Brazil; CMN - Canadian Museum of Nature, Ottawa; FSCA - Florida State Collection of Arthropods, Gainesville; HNHM - Hungarian Natural History Museum, Budapest; ISEA - Institute of Systematics and Evolution of Animals, Kraków; MNHN - Museum national d'Histoire naturelle, Paris; NMNH - National Museum of Natural History, Washington; NMP - National Museum, Prague; NRS - Naturhistoriska Rijksmuseet, Stockholm; TM - Transvaal Museum, Pretoria; WWC - William Warner Collection, Arizona.

DESCRIPTIONS

Flechtmannia gen.n.

Euparia St.-Fargeau & Serville, 1828: 357 (partim).
Type species: *Euparia laticollis* Petrovitz.

Diagnosis. Body robust. Head moderate in size, strongly gibbose at middle. Eye large, partially visible from above. Antenna 9-segmented, club circular, 3-segmented. Mouthparts adapted to soft saprophagy (Stebnicka 1985). Pronotum transverse, 1/3 as long as wide; anterior angles prominent in front, widely rounded and slightly reflexed, sides strongly converging to base. Scutellum narrowly triangular. Elytra elevated at middle, arduous toward sides and apex; humeri finely denticulate; elytral interval 9 strongly raised, forming lateral fold, interval 10 and epipleura abruptly inflexed. Metathoracic wings functional. Prosternum with small, triangular process. Mesosternum declivous toward metasternum; mesocoxae slightly separated, mesocoxal cavities elongate; metasternum elevated, relatively short. Abdominal sternites fused. Profemur narrow; meso- and metafemora slightly narrower than profemora, posterior femoral lines complete; meso- and metatibiae as long as femora, expanded apically, apical spurs thin; tarsi short, tarsal segments robust, claws very fine, hornlike.

Differentiating diagnosis. The new genus shares some character states with *Lomanoxia* Martinez including an inflexed elytron, but it significantly differs from that genus by the features of the pronotum, mesosternum and abdomen and by its elongate mesocoxal cavities. In *Lomanoxia*, the mesocoxal cavities are similar to those characterizing the Colydiidae-beetles (Cucujoidea) and are unique within Aphodiinae.

ETYMOLOGY. The genus is named in honour of Carlos F. Flechtmann, University of Brasilia, whose field work revealed several new and little known species of Euparíini.

Flechtmannia laticollis (Petrovitz) comb. n. Figs 1, 2

Euparia laticollis Petrovitz, 1973: 181-183.

?*Euparia laticollis*: CHALUMEAU & HOWDEN 1984: 87; DELLACASA 1988: 284 (catalogue).

MATERIAL EXAMINED. Holotype male, labelled: 'Brasilien, Mato Grosso, Corumba', '*Euparia laticollis* Petrovitz' (MHNG).

Other specimens (3): Brazil, Mato Grosso do Sul state, Tres Lagoas, Horto Rio Verde, 26.x.1993, black light trap, *Eucalyptus grandis* stand, C. Flechtmann (ISEA); Mato Grosso, Caceres, 24.xii.1955; Sao Paulo state, Itu, Faz. Pau d'Alho, 8.x.1960, coll. Martinez (CMN).

DESCRIPTION

Length 5.0-6.0 mm, greatest width 2.1-2.3 mm. Body (Fig. 2) elongate oval, plump, glabrous; colour carbon black, shining, legs reddish brown. Clypeus distinctly emarginate, anterior face thickened and slightly reflexed, sides arcuate toward prominent, deflexed gena; surface of head everywhere very finely to finely punctate, punctures separated by 2-3 diameters. Pronotum moderately convex medially, tumid along anterior margin, posterior angles barely angulate; sides and base margined, side margin with few very short, stubby setae; anterior median surface of pronotum very finely to finely punctate, posterior basal area and sides with coarse, deep punctures slightly irregularly spaced, separated by 1 diameter or less. Elytra widest at middle, finely margined at base, slightly lobed and explanate apically, edge of apex thickened; humeral umbone weakly indicated; striae narrow and shallow with fine punctures; intervals flat in anterior 2/3, obtusely convex in apical 1/3 and not united at apex; interval 9 strongly costate, ended before apex and here united with interval 7; interval 10 flat, invisible from directly above, epipleura narrow from base to apex; surface of intervals moderately shining with minute scattered punctures. Metathoracic wings functional. Mesosternum finely scabrous in anterior half, shining and punctate between mesocoxae, intercoxal carina lacking; metasternum finely punctate, midline impressed, lateral metasternal triangle wide and deep, slightly scabrous inside; abdominal sternites glabrous, finely fluted along sutures and indistinctly punctate. Surface of profemur shining, closely punctate, meso- and metafemora with fine scattered punctures; apex of meso- and metatibiae fringed with short setae, lacking accessory spine; basal segment of metatarsus subequal in length to upper tibial spur and subequal to following three tarsal segments combined.

Male. Terminal spur of protibia hooked inwardly at the tip; genitalia as in Fig. 1.

Female. Meso- and metatibiae and tarsal segments less robust than in male.

Selviria gen.n.

Type species: *Selviria matogrossoensis* sp.n.

DIAGNOSIS. Body slender. Head large, gibbose medially. Eye small, invisible from above. Antenna 9-segmented, club elongate oval, 3-segmented. Mouthparts

adapted to soft saprophagy. Pronotum transverse, sides widely arcuate and deplanate, side margin upturned. Scutellum parallel-sided, rounded at apex. Elytra convex at middle, widest at posterior third, humeral denticles small; elytral edge in posterior 2/3 narrowly deplanate and upturned. Prosternum with wide triangular process. Mesosternum declivous in posterior half, mesocoxae slightly separated; metasternum convex; abdominal sternites fused. Profemur 2 times as wide as mesofemur; meso- and metafemora long, narrow, flattened dorsoventrally, posterior femoral lines lacking; first tooth and terminal spur of protibia long; meso- and metatibiae unusually long and thin, slightly sinuate; tarsal segments relatively thick, the same thickness as tibia at knee; claws very fine, hornlike.

DIFFERENTIATING DIAGNOSIS. The new genus is most closely related to *Martineziella* Chalumeau, but differs noticeably in the form of the pronotum, elytra and legs. It can be easily distinguished from *Martineziella* and other euparine genera by its unusually long and thin tibiae and by its upturned margin of the elytra.

ETYMOLOGY. The name refers to the locality of the type species.

Selviria matogrossoensis sp. n. Figs 3, 4

Holotype, male: Brazil, Mato Grosso do Sul state, Selviria, UNESP's farm, 10.xi.1994, black light trap, pasture, Code C-604, C. Flechtmann (MHNG).

Paratype, female: Mato Grosso do Sul, Tres Lagoas, Horto Rio Verde, 1.x.1993, black light trap, *Eucalyptus grandis* stand, Code C-1274, C. Flechtmann (ISEA).

DESCRIPTION

Length 4.8-5.0 mm, greatest width 1.9-2.0 mm. Body (Fig. 3) elongate, glabrous, shining; colour light castaneous, anterior of clypeus and sides of pronotum transparent. Clypeal margin upturned, rounded on each side of moderate median emargination and sinuate toward rounded, protruding gena; surface of head shining impunctate or with very few minute punctures on vertex. Pronotum moderately convex on disc, sides and base lacking marginal line, lateral edge fringed with very short, yellow, hair-like setae; pronotal surface shallowly punctate, anterior median area and sides finely punctate, disc with intermixed larger and closer punctures separated by 1 diameter, becoming closest along base. Elytra microreticulate, shining, humeral umbone moderate; striae fine, shallow with fine, slightly transverse punctures, stria 10 from base to apex with row of coarse, close punctures; discal intervals flat, moderately convex apically, surface punctures inconspicuous. Metathoracic wings functional. Mesosternum finely scabrous; space between mesocoxae smaller than width of mesofemur, lacking carina; metasternal plate convex, midline impressed, surface minutely punctate, lateral triangle shallow; abdominal sternites minutely fluted along sutures, surface glabrous impunctate. Profemur with perimarginal groove; surface of all femora with few fine scattered punctures; meso- and metatibiae hairless, apical fringe of 8-9 short setae, apical spurs slender, accessory spine absent; basal segment of metatarsus subequal in length to upper tibial spur and to following three tarsal segments combined.

Male. Terminal spur of protibia hooked inwardly at the tip; genitalia as in Fig. 4.

Female. Punctures of pronotum somewhat closer than in male.

Arupaia gen.n.

Euparia St.-Fargeau & Serville, 1828: 357 (partim).
Iarupea Martinez, 1953: 75-77 (partim).

Type species: *Euparia friedenreichi* Harold.

Diagnosis. Body elongate, glabrous. Head large, deflexed, strongly gibbose at middle, gena remarkably produced. Eye moderate in size, invisible from above. Antenna 9-segmented, club ovoid, 3-segmented. Mouthparts adapted to soft saprophagy. Pronotum transverse, 1/3 as long as wide, disc convex, sides widely explanate, slightly arcuate, side margin fringed with short hair-like setae; anterior and posterior angles widely rounded, base strongly lobed at middle, deeply excavate on each side to receive humeral lobes of elytra; basal margin grooved, wide, punctate or longitudinally strigose. Scutellum parallel-sided, rounded apically. Elytra at base narrower than pronotum, widest in apical third; base finely margined and swollen; humeri produced forwards, ended by large denticles directed downward at the tip; striae finely impressed; intervals slightly convex; epipleura oblique, gradually narrowed to apex. Metathoracic wings functional. Prosternum with wide triangular process. Mesosternum declivous toward metasternum; mesocoxae moderately separated, space between mesocoxae smaller than width of mesofemur, with fine carina. Metasternum convex. Abdominal sternites fused. Profemora wide, flattened posteriorly; meso- and metafemora long, slightly fussiform; protibia with three lateral teeth unequal in size; meso- and metatibiae longer than femora, thin, feebly sinuate and widened apically; apical spurs and tarsal segments slender; claws fine, hornlike.

Differentiating diagnosis. The genus is most close to *Euparia* sharing some similar character states. It differs from *Euparia* by its glabrous body, by the form and sculpture of the pronotum furnished with wide basal margin and by its longer and thinner tibiae. After comparing the representatives of all related genera with those of *Euparia friedenreichi*, I consider the latter sufficiently distinct to warrant a separate genus.

Etymology. The generic name is a combination of the reverse of the name *Euparia*.

Arupaia friedenreichi (Harold) comb. n. Fig. 10

Euparia friedenreichi Harold, 1870: 23, 27.- Schmidt 1922: 397; Petrovitz 1973: 186.
?*Euparia friedenreichi*: Chalumeau & Howden, 1984: 87; Dellacasa 1988: 131 (catalogue).
Iarupea guimaraesi Martinez, 1955: 68.- Dellacasa 1988: 285 (catalogue) **syn.n.**
Euparia friedenreichi: type not examined (MNHN?), type locality: Brazil, Santa Catarina.

Material examined. *Iarupea guimaraesi*: paratypes (2) male and female, labelled: 'Brazil, Sao Paulo, Osasco, x. 1955, coll. Martinez' (CMN).
Other specimens (22): Brazil, Nuova Teutonia, Santa Catarina, xii. 1971, i-iii-xii. 1972, i. 1975, F. Plaumann (CMN, ISEA, MHNG); Sao Paulo state, x. 1956, Piracicaba, 2.iii.1966, black light trap, coll. Martinez (CMN), Campinas, v-vi. 1965, G. Illy (ISEA).

Description

Length 5.5-6.0 mm, greatest width 1.9-2.0 Body glabrous, moderately shining; colour dark castaneous to black. Clypeal margin finely inflexed medially, rounded on each side of shallow median emargination, sides arcuate and distictly emarginate before gena; lateral margin from gena to frons deeply grooved to meet pronotal edge when head is in repose; clypeal surface longitudinally wrinkled over median gibbosity and outward to elongate, impunctate tumosity just above marginal groove; frontal area with fine round punctures becoming larger and less close on vertex. Pronotum transverse, 1/3 as long as wide, disc moderately convex; surface punctures oval in shape, separated by 1 diameter or less, frequently confluent; basal pronotal margin scabrous and finely strigose. Elytra nearly parallel-sided or slightly widened at apical third, humeral umbone distinctly enlarged laterally; elytral striae fine to moderate with fine to moderate punctures slightly crenating inner margins of smooth intervals; interval 5 at base ended by strong tubercle (Fig. 10). Mesosternum scabrous in anterior half, finely punctate between mesocoxae with fine carina on punctate area; metasternal midline impressed, disc impunctate, lateral metasternal triangle shallow. Abdominal sternites finely fluted along sutures, surface glabrous impunctate; pygidium scabrous. All femora punctate, punctures fine to moderate, more or less close, evenly spaced; protibia with three lateral teeth unequal in size, terminal tooth longest, third usually very small; meso- and metatibiae equal in length, about twice as long as tarsi, outer side with row of granules bearing short setae; basal segment of metatarsus subequal to upper tibial spur and longer than following three tarsal segments combined. In male, terminal spur of protibia bent inward at the tip.

Remarks. I have been unable to study the type of *Arupaia friedenreichi* but I have seen a number of photographs of it through the courtesy of Dr Henry Howden. Also, the specimens examined were collected at the type locality. With these in hand I feel that there is little doubt of the above synonymy.

Iarupea Martinez

Iarupea Martinez, 1953: 75-77.- Dellacasa 1988: 271 (catalogue).
Euparia St.-Fargeau & Serville, 1828: 357 (partim).
Iarupoides Chalumeau & Howden, 1984: 87 (nomen nudum); Dellacasa 1988: 139 (catalogue). **syn. n.**

Type species: *Iarupea lopeteguii*, by monotypy.

Diagnosis. Body elongate, glabrous, usually covered with argillaceous coating. Head moderate in size, strongly gibbose at middle; gena prominent. Eye invisible from above. Antenna 9-segmented, club ovoid, 3-segmented. Mouthparts adapted to soft saprophagy. Pronotum strongly convex on disc, diverging posteriorly; anterior angles rounded and slightly explanate, sides narrowly explanate and bisinuate to small, acute posterior angles; side margin fringed with short, hair-like setae; base bisinuate, grooved, strongly lobed at middle, basal margin wide, longitudinally strigose. Scutellum triangular, impressed. Elytra at base narrower than pronotum, widest in apical third; humeri produced forwards, ended by large denticles; base margined and swollen; elytral striae with transverse punctures strongly crenating intervals; intervals microreticulate,

punctate or swollen; epipleura oblique, gradually narrowed toward apex. Metathoracic wings functional. Prosternum with wide, triangular process; mesosternum declivous toward metasternum; mesocoxae slightly separated, space between mesocoxae equal to width of mesofemur, with fine carina; metasternum rather long, convex. Abdominal sternites fused. Profemur wide, posterior margin widely flattened; Meso-and metafemora long, parallel-sided; meso- and metatibiae longer than femora, thin, slightly enlarged apically; apical spurs and tarsal segments slender; claws fine, hornlike.

Differentiating diagnosis. The genus is most closely related to *Myrmecaphodius*. It differs from *Myrmecaphodius* by the form of its pronotum and the elytra with humeral lobes.

Remarks. Martinez (1953) established the genus Iarupea to accomodate a distinctive species *I. lopeteguii* from Argentina. The genus was unique in having a combination of the characters given above. Chalumeau (1984) placed Euparia attenuata in a new genus named *Iarupoides* (nomen nudum), although *E. attenuata* bears the essential features characterizing the genus *Iarupea*. A third highly distinctive species, *Euparia serratipennis* is here also transferred to *Iarupea*. I believe, based upon examination of all available specimens of the species listed below that they are congeneric. The differences between *Iarupea lopeteguii* and *Euparia attenuata* at the generic level are not as substantial as the similarities between them, such as form of the head, pronotum, elytra, legs and the male genitalia.

The species of *Iarupea* are known or suspected to occur in ant nests, however, the exact nature of their association with ants is not clear.

Key to iarupea species

1 Pronotum strongly rugose with round, close punctures or longitudinal wrinkles; elytral intervals swollen or transversely crenate 2
- Pronotum with round or elongate, not rugose punctures separated by 1 diameter or less; elytral intervals crenate by strial punctures to about 1/3 of their width, lateral area rather smooth with few scattered punctures . . . . . *I. attenuata*
2 Pronotal punctures round, rugose, nearly contiguous, pronotal base on each side with distinct tubercle; elytral intervals crenate by strial punctures to about 1/2 of their width, lateral area distinctly punctate through . . . . . *I. lopeteguii*
- Pronotal punctures strongly longitudinally confluent, forming irregular wrinkles, basal tubercles weakly indicated or lacking; elytral intervals swollen, distinctly transversely crenate and punctate . . . . . *I. serratipennis*

Iarupea attenuata (Harold) comb. n. Fig. 11

Euparia attenuata Harold, 1870: 23,28.- Schmidt 1922: 397.
Iarupoides attenuatus: Chalumeau & Howden 1984: 87; Dellacasa 1988: 93 (catalogue).

MATERIAL EXAMINED. Lectotype designated by CARTWRIGHT 1973 (MNHN). Other specimens (12). Brazil, Minas Gerais state, Cordisburgo, Faz. Pontinha, vii. 1974, F. de Mello (ISEA); Para state, Jacareacanga, x. 1959, coll. Martinez (CMN, MHNG).

DIFFERENTIATING DIAGNOSIS. *Iarupea attenuata* is closely allied to *I. lopeteguii* and to *I. serratipennis*, but it is quite distinct from both species in having the pronotal punctures less dense, forming shallow pits. The male genitalia are similar to those of *I. lopeteguii*.

Iarupea lopeteguii Martinez Fig. 5

Iarupea lopeteguii Martinez, 1953: 77-80, fig. 9.- DELLACASA 1988: 271 (catalogue).

MATERIAL EXAMINED. Holotype and paratypes (4) labelled: 'Argentina, Prov. Formosa, Puerto Irigoyen, Rio Pilcomayo, xii. 1950, J.B. Daguerre, coll. Martinez'; 'Prov. Salta, Dep. General San Martin, Aguaray, xi. 1950, coll. Martinez' (CMN).
Other specimens (17). ARGENTINA: Prov. Salta, NS Telavera, xi.1957; Dep. General Ballivian, 1927, leg. Harrington; Dep. Gen. San Martin, Politos, xi. 1950; Dep. Las Lajitas, xii.1984, coll. Martinez (CMN, MHNG); Dep. Tartagal, 12-19.xii.1990, black light, M. Archangelsky (WWC). BOLIVIA: Santa Cruz, Paiz Cordillera, Cabezas, ii. 1971, coll. Martinez (CMN); Villa Montes at Rio Pilcomayo, 1-29.xi.1930, leg. Eisentraut (ZMHB). PARAGUAY: Dep. Boqueron, Gran Chaco, xi. 1956, coll. Martinez (CMN).

DIFFERENTIATING DIAGNOSIS. *Iarupea lopeteguii* is most closely related to *I. serratipennis*, but it differs from that species in the scupture of the pronotum.

REMARKS. According to MARTINEZ (1953), several specimens of *I. lopeteguii* were collected in the nests of leaf-cutting ants *Atta vollenweideri* (Myrmicinae).

Iarupea serratipennis (Petrovitz) comb. n. Fig. 6

Euparia serratipennis Petrovitz, 1973: 185-186.

?*Euparia serratipennis*: CHALUMEAU & HOWDEN, 1984: 88; DELLACASA 1988: 284 (catalogue).

MATERIAL EXAMINED. Holotype male, labelled: 'Brasilien, Minas Gerais, 1897, ex. coll. Fruehstorfer', *Euparia serratipennis* Petrovitz' (MHNG).
Other specimens (24). ARGENTINA: Missiones, Iguazu, xii.1957, coll. Martinez (CMN). BOLIVIA: Guayaramerin (Beni), 23.xi.1966, Hungarian Soil Exp. (HNHM, MHNG). BRAZIL: Nuova Teutonia, Santa Catarina, xii.1972, F. Plaumann (CMN); Amazonas (ISEA); Rondonia, 62 km SW Ariquemes, near Faz. Rancho Grande, 25.ix.1992, V. Schmitz (FSCA); Maranhao state, Pedrinhas, 26.vi.1984, C. Flechtmann (ISEA); Mato Grosso state, Xingu, xi. 1963; Esp. Santo, Linhares, xi.1962, coll. Martinez (CMN). PARAGUAY: Puerto P. Stroessner (= Ciudad del Este) 5-6.i.1966, (MHNG, ISEA); Villarica, 25 km E Independencia, 25.15S, 56.35W, 21.i.1991, Endrödy-Younga (ISEA, TM).

DIFFERENTIATING DIAGNOSIS. *Iarupea serratipennis* is most closely related to *I. lopeteguii*, from which it differs by the characters given in the key. The male genitalia are similar to those in *I. lopeteguii*, epipharynx as in Fig. 6.

REMARKS. Even though *I. serratipennis* is represented by the greatest number of specimens, its host relationships have not been established. However, because of its similarity to the other species of the genus, I expect it to be associated with leaf-cutting ants.

Myrmecaphodius Martinez

Myrmecaphodius Martinez, 1952: 85-87.- DELLACASA 1988: 271 (catalogue).
Euparia St.-Fargeau & Serville, 1828: 357 (partim).

Type species *Myrmecaphodius proseni*, by monotypy.

DIFFERENTIATING DIAGNOSIS. Until now only a single Neotropical species *M. proseni* represents the genus which is closely related to *Martineziella* Chalumeau (1986). It differs from *Martineziella* by the shape and sculpture of its pronotum. In many respects it is also quite close to *Iarupea* even though the latter has more of the appearance of *Euparia* and *Arupaia*.

Myrmecaphodius proseni Martinez

Myrmecaphodius proseni Martinez, 1952: 87-92, figs 8-17, 50.- CHALUMEAU 1983: 148, fig. 8; DELLACASA 1988: 285 (catalogue).

Euparia fornicata Petrovitz, 1973: 187-188.

Myrmecaphodius fornicatus: DELLACASA 1988: 284 (catalogue). **syn.n.**

MATERIAL EXAMINED. *Myrmecaphodius proseni*: holotype male and paratypes (4) labelled: 'Argentina, Buenos Aires, Partido de Puan, Estacion Felipe Sola, 16-18.iv.1952, coll. Martinez' (CMN).

Euparia fornicata: holotype female, labelled: 'Villa Ballester, Buenos Aires, Arg.', *Euparia fornicata* Petrovitz' (MHNG).

One paratype of *M. proseni* (CMN) belongs to *Martineziella dutertrei* (Chalumeau 1983).

REMARKS. Comparison of the two holotypes showed them to be the same species, *M. proseni*. Several specimens of *M. proseni* have been collected by MARTINEZ (1952) in the nest of fire ants *Solenopsis saevissima* (Myrmicinae).

Lomanoxoides Stebnicka

Lomanoxoides Chalumeau & Howden, 1984: 87 (nomen nudum).- DELLACASA 1988: 341 (catalogue).

Euparia ST.- FARGEAU & SERVILLE 1828: 357 (partim).

Ataenius Harold, 1867: 82 (partim).

Phalangochaeta Martinez, 1952: 92-94 (partim).

Type species *Euparia bitubericollis*, designated by CHALUMEAU *et al.* (1984).

DESCRIPTION

Body oval, robust, strongly convex. Head deflexed, as wide as pronotum, clypeal margin usually inflexed at middle, ended by triangular process. Eye invisible from above. Antenna 9-segmented, club ovoid 3-segmented. Mouthparts adapted to soft saprophagy. Pronotum strongly convex, side margin fringed with short setae; pronotal surface with tumosity or/and fovea on sides, or/and tubercles and fossa at middle of base. Scutellum triangular. Elytra strongly convex, arcuate toward apex, humeral denticles small, acute, base margined; striae impressed punctate; intervals tectiform or strongly convex with median row of minute, close punctures or granules, surface frequently setigerous. Prosternum with triangular process; mesosternum slightly deplanate, space between mesocoxae smaller than width of mesofemur; mesometasternal carina elevated, long; metasternum convex, relatively short, lateral metasternal triangle large, deep. Abdominal sternites fluted along sutures. Profemora wide; meso- and metafemora fusiform, slightly narrower than profemora, postfemoral lines distinct; meso- and metatibiae as long as femora, slightly expanded apically, outer edge spini-

form; apical spurs thin; tarsi shorter than tibiae, tarsal segments cylindrical; claws very fine, horn-like. Phallobase of male genitalia long, parameres relatively short, rounded apically.

DIFFERENTIATING DIAGNOSIS. The genus is most similar to *Phalangochaeta* in its general facies and in some shared character states. In *Phalangochaeta*, however, the head is larger and strongly gibbose, the margins and surface of the pronotum are very different and the meso- and metatarsi are setaceous, tapering or thickened, usually significantly shorter than tibia. *Lomanoxoides* includes presently five species, but in fact all of them are rarely collected and there must be several species which remain to be discovered.

KEY TO SPECIES OF LOMANOXOIDES

1 Length 3.8-4.0 mm; colour castaneous; disc of pronotum in posterior half with transverse fold broken by short, shallow fossa; elytral intervals convex with median row of tooth-like granules bearing semierect seta ..... *L. thoracalis*

- Length 4.8-5.5 mm; colour reddish black or black; disc of pronotum in posterior half lacking fold; elytral intervals convex to tectiform, setigerous or glabrous 2

2 Colour black; disc of pronotum above scutellum more or less deeply fossulate, surface punctures unequal in size, unevenly spaced; elytral intervals tectiform 3

- Colour reddish black; disc of pronotum not fossulate, surface punctures fine, equal in size, uniformly spaced; elytral intervals moderately to strongly convex 4

3 Pronotal fossa deep, oval; elytral striae strongly impressed, strial punctures deep, intervals apically and elytral margin from base to apex with upright, clavate setae ..... *L. selviriaensis* sp. n.

- Pronotal fossa shallow, round; elytral striae finely impressed, strial punctures shallow, intervals glabrous, elytral margin apically with few clavate setae ..... *L. bitubericollis*

4 Elytral intervals unicolored, strongly convex with median row of fine punctures bearing minute seta, apex of intervals 5,7,9 with few erect, clavate setae ..... *L. tesari*

Elytral intervals medially darkened, moderately convex with scattered, fine punctures and distinct erect setae on apical declivity .... *L. nigrolineatus*

Lomanoxoides thoracalis (Petrovitz) comb. n. Fig. 7

Ataenius thoracalis Petrovitz, 1964: 284-285.- DELLACASA 1988: 282 (catalogue).

MATERIAL EXAMINED. Holotype (sex not determined) labelled: 'Brasilien, Manaos', '*Ataenius thoracalis* Petr.' (MHNG).

Other specimens (6). ARGENTINA: Prov. Salta, Tonona, coll. Martinez (CMN, ISEA). BOLIVIA: Santa Cruz, 500 m, x.1955 (MHNG); Guayaramerin (Beni), 23.xi.1966, Soil. Zool. Exp. (HNHM). BRAZIL: MS Campo Grande, 10.xi.1994, W. Koller (ISEA).

DIFFERENTIATING DIAGNOSIS. *Lomanoxoides thoracalis* might be considered a slightly atypical member of the genus, but the features of the head and under surface, the distinctive pronotal and genitalic characters seem to justify its placement. The odd pronotal characters coupled with those of elytra should easily distinguish *L. thoracalis* from any other species.
Nothing is known of its habits.

Lomanoxoides tesari (Balthasar) comb. nov. Figs 8, 12

Euparia tesari Balthasar, 1963: 285-286.

Ataenius fastigatus Petrovitz, 1973: 168.- CHALUMEAU 1992: 198 (as synonym of *E. tesari*).

Phalangochaeta tesari: DELLACASA 1988: 285 (catalogue: unjustified placement).

Ataenius hrubantovai Chalumeau, 1992: 198-200 (nom. n. for preoccupied name in *Ataenius*).- DELLACASA 1996: 170 (catalogue). **syn. n.**

MATERIAL EXAMINED. *Euparia tesari*: holotype female (examined in 1973, coll. Balthasar) labelled: 'Paraguay, Asuncion' (NMP?).
Ataenius fastigatus: holotype (sex not determined) labelled: 'S.P. Brasilien, Sa. de Paranapiacaba', '*Ataenius fastigatus* Petrovitz' (MHNG).
Other specimens (6). ARGENTINA: Prov. Missiones, ix.1956, coll. Martinez (CMN). BRAZIL: Mato Grosso do Sul state, Selviria, 18.iv.1993, pasture, cattle dropping, C. Flechtmann (ISEA); Minas Gerais state, Ipatinga, ix. 1993, E. Grossi (ISEA); Rondonia, 62 km SW Ariquemes, Faz. Rancho Grande, 8.xi.1994, C.W. & L.B. O'Brien (WWC).

DIFFERENTIATING DIAGNOSIS. The species was incorrectly classified by CHALUMEAU (1992) in the genus *Ataenius*. The supposedly diagnostic character of the length of the basal segment of mesotarsus does not to be consistent and occurs in many other species in various genera. *Lomanoxoides tesari* is most closely allied to *L. nigrolineatus* (see remarks under that species).

REMARKS. While uncommon in the collections, the species appears to range widely in South America. The specimens have been recorded coming to light and collected in the nest of *Atta sexdens* (Myrmicinae).

Lomanoxoides nigrolineatus (Hinton) comb. n.

Ataenius nigrolineatus Hinton, 1938: 116-117, figs 9-12.- DELLACASA 1988: 278 (catalogue).

Ataenius (*Paraplesiataenius*) *nigrolineatus*: CHALUMEAU 1992: 199.

Type not examined (NMNH), type locality: Panama, Barro Colorado Island.

MATERIAL EXAMINED. Specimens (3). Panama, Las Cumbres, 20.v.1974, H. Wolda (ISEA, MHNG, WWC).

DIFFERENTIATING DIAGNOSIS. Although the type was not available for the present study, the identity of *Lomanoxoides nigrolineatus* is easily established by the description and range. The species is hirtherto known only from Panama. It may be easily distinguished from its close relative *L. tesari*, by having a wider pronotum with deeper lateral fovea as well as by less convex and medially darkened elytral intervals with irregular punctures not arranged in rows. The remaining characters of the external morphology and the shape of the male genitalia are similar to those of *L. tesari* (Figs 8, 12). Both species are close to the following species of the genus but differ in a smaller

size, lighter colour of the body and in the sculpture of the pronotum. Nothing is known of the habits of *L. nigrolineatus*.

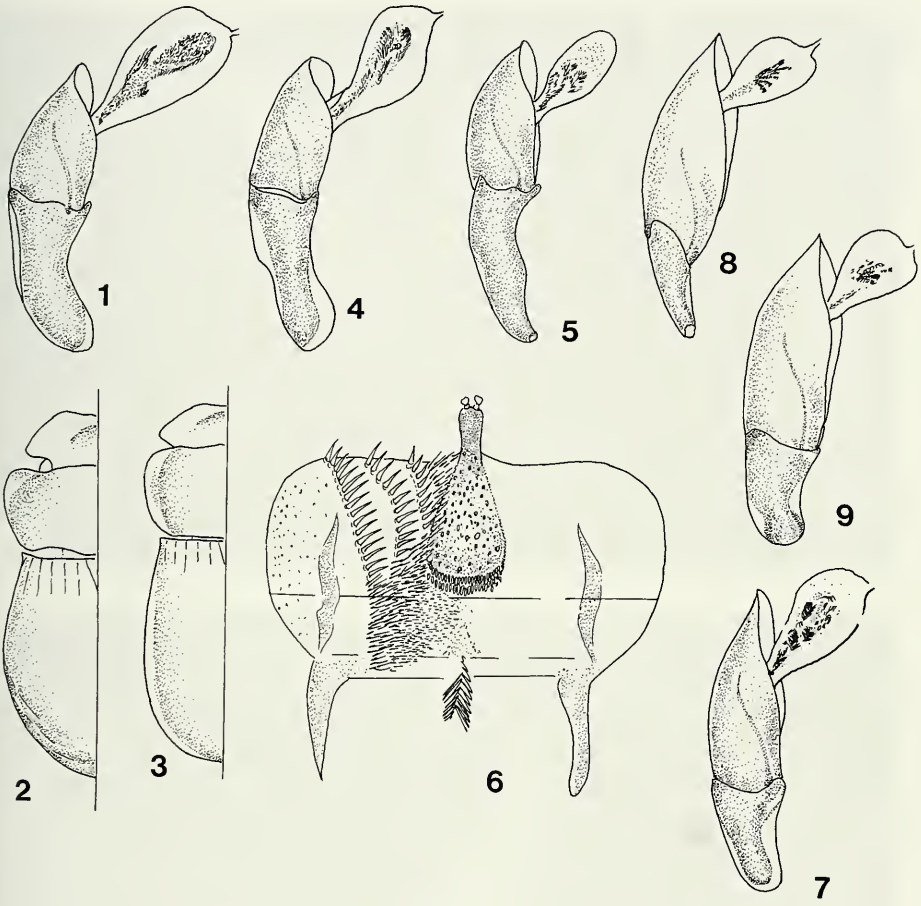
Lomanoxoides selviriaensis sp. n. Fig. 9

Holotype male: Brazil, Mato Grosso do Sul, Selviria, UNESP's farm, 28.xi.1993, pasture C-377, black light trap, C. Flechtmann (MHNG). Paratypes (2), same locality as holotype, 11.iv.1995, pasture C-141, ex Guzera cattle dropping, S.R. Rodrigues (ISEA, MHNG).

DESCRIPTION

Length 5.0-5.5 mm, greatest width 2.1-2.2 mm. Body elongate oval, convex, shining; colour black, legs and under surface brownish black. Head as wide as pronotum, convex at middle, clypeal margin widely rounded on each side of shallow median emargination, sides arcuate to obtusely rounded, slightly protruding gena; clypeal surface with weak carina just above median emargination, minutely granular anteriorly, median convexity with shallow, minute punctures gradually increasing in size and depth toward vertex and here separated by 1 diameter or less. Pronotum about 2.5 times as long as wide; anterior angles rounded, sides slightly arcuate toward obtuse posterior angles, edge finely crenate, fringed with short, club-shaped setae; basal marginal line very fine lacking setae; pronotal surface swollen with large tumosity laterally and wide fossa above scutellum; sculpture uneven, punctures mixed fine, moderate and large, the latter unequally spaced, concentrated in posterior third of pronotum between median fossa and lateral tumosity and blending into scabrous area along lateral margin. Scutellum shining impunctate. Elytra widest at middle, sides and apical declivity with upright, not close, clavate setae; humeral denticles small; striae deep, strial punctures crenating outer slopes of intervals, crenations distinctly visible in glancing light; intervals tectiform, median carina acutely elevated, median punctures very minute. Mesosternum scabrous, rugose, mesometasternal carina long; metasternum convex, midline finely impressed, punctures fine; lateral metasternal triangle deep, scabrous inside; abdominal sternites 3-5 coarsely fluted in anterior half, surface glabrous, minutely to finely punctate; pygidium scabrous in apical 2/3, edge fringed with stout setae. Profemur with deep perimarginal groove and scabrous surface; punctures of meso- and metafemora fine, bearing minute yellow seta, postfemoral lines strong, complete; terminal spur of protibia slender, acutely pointed; meso- and metatibiae as long as femora with row of setae, apex spiniform externally, accessory spine lacking; basal segment of metatarsus longer than upper tibial spur and subequal to following three tarsal segments combined. External sexual differences slight; in male, penultimate abdominal sternite shorter than in female; male genitalia as in Fig. 9.

DIFFERENTIATING DIAGNOSIS. The species is very closely related to *L. bitubericollis*, but it can be separated from that species by its coarser sculpture of the pronotum and the more acutely elevated elytral intervals with upright setae. Although its host ant is unknown, probably differs in this respect also.



FIGS 1-9
Male genitalia in lateral view, outlines of body, epipharynx. 1-2. *Flechtmannia laticollis* (Petrovitz); 1. male genitalia, 2. body outline. 3-4. *Selviria matogrossoensis* sp. n. holotype; 4. male genitalia. 3. body outline. 5. *Iarupea lopeteguii* Martinez; male genitalia. 6. *I. serratipennis* (Petrovitz); epipharynx. 7-9. male genitalia; 7. *Lomanoxoides thoracalis* (Petrovitz). 8. *L. tesari* (Balthasar). 9. *L. selviriaensis* sp. n.

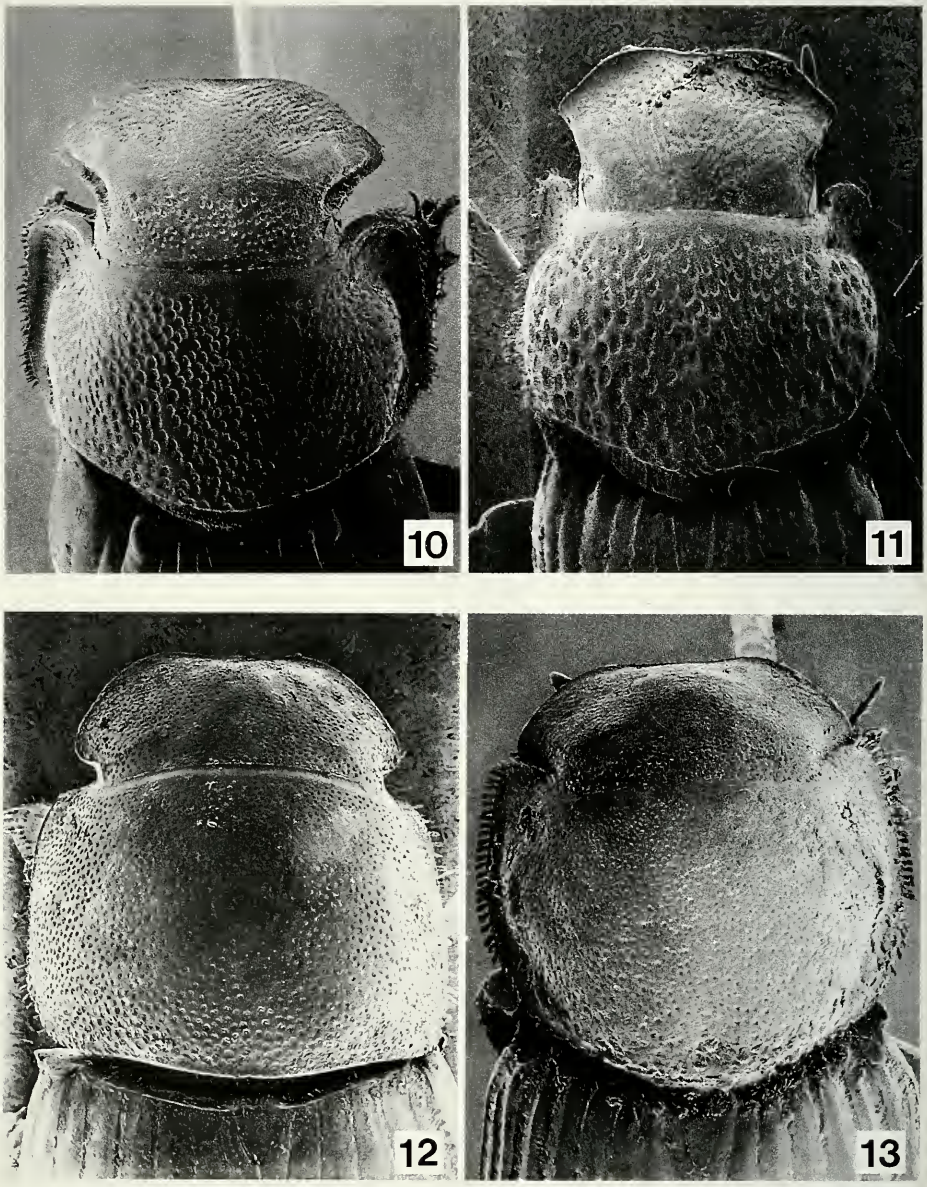
Lomanoxoides bitubericollis (Schmidt) Fig. 13

Euparia bitubericollis Schmidt, 1909: 44.- 1922: 396.

Lomanoxoides bitubericollis: CHALUMEAU & HOWDEN 1984: 87; DELLACASA 1988: 99 (catalogue).

MATERIAL EXAMINED. Holotype (sex undetermined) labelled: 'Argentinien' (NRS).
Other specimens (14). Argentina, Prov. Buenos Aires, Rosas, 1968; San Isidro, 4.i.1948, xii. 1963; Buenos Aires, vi.1945, J. Daguerre; Prov. Formosa, Pilaga, ii. 1949; Prov. Cordoba, Alta Gracia, ii.1980; Prov. Chaco, Resistencia, xi.1962, coll. Martinez (CMN, ISEA).

DIFFERENTIATING DIAGNOSIS. *Lomanoxoides bitubericollis* is hitherto known to occur only in Argentina. It is very similar in the general appearance and in the shape of the male genitalia to allopatric *L. selviriaensis*. (See remarks under the latter species).



FIGS 10-11

Habitus. 10. *Arupaia friedenreichi* (Harold). 11. *Iarupea attenuata* (Harold).

FIGS 12-13

Habitus. 12. *Lomanoxoides tesari* (Balthasar). 13. *L. bitubericollis* (Schmidt).

ACKNOWLEDGEMENTS

I am deeply grateful to the following persons who loaned me the material for study: Ivan Löbl (NHNG), Carlos Flechtmann (Georgia), François Génier and Henry Howden (CMN), Paul Skelley (FSCA), Otto Merkl (HNHM), Sebastian Endrödi-Younga (TM) and William Warner (Arizona). I am especially grateful to Henry Howden (Ottawa) for sending me the pictures of beetles.

The work was supported by an operating grant from the Natural Sciences Research Council in Warsaw.

REFERENCES

BALTHASAR, V. 1963. Eine neue Gattung, Untergattung und neue Arten der Familie Aphodiidae. *Reichenbachia* 1: 277-290.

CHALUMEAU, F. 1983. *Batesiana* et *Martinezia*, nouveaux genres d'Eupariini du nouveau monde. *Bulletin mensuel de la Société Linnéenne de Lyon* 52: 142-153.

CHALUMEAU, F. 1986. *Martineziella* nomen novo pour *Martinezia* Chalumeau. *Nouvelle Revue d'Entomologie* 3: 386.

CHALUMEAU, F. 1992. Eupariini du nouveau monde: un mise au point. *Nouvelle Revue d'Entomologie* 9: 189-206.

CHALUMEAU, F. & HOWDEN, H.F. 1984. Le genre *Euparia* Saint-Fargeau & Serville, 1828. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 57: 85-94.

DELLACASA, M. 1988. Contribution to a world-wide catalogue of Aegialiidae, Aphodiidae, Aulonocnemidae, Termitotrogidae (Coleoptera Scarabaeoidea). *Memorie della Societa entomologica italiana* 67: 3-455.

DELLACASA, M. 1996. Contribution to a world-wide catalogue of Aegialiidae, Aphodiidae, Aulonocnemidae, Termitotrogidae. Addenda & corrigenda, 3-rd note. *Memorie della Societa entomologica italiana* 74: 159-232.

HAROLD, E. 1867. Diagnosen neuer Coprophagen. *Coleopterologische Hefte* 1: 76-83.

HAROLD, E. 1870. Die Arten der Gattung *Euparia*. *Coleopterologische Hefte* 6: 19-30.

HINTON, H.E. 1938. New species of neotropical Aphodiinae. *Revista de Entomologia* 8: 122-129.

MARTINEZ, A. 1952. Scarabaeidae nuevos o poco conocidos. III. *Mision de Estudios de Patologia regional argentina* 23: 53-118.

MARTINEZ, A. 1953. Scarabaeidae nuevos o poco conocidos. IV. *Mision de Estudios de Patologia regional argentina* 24: 69-85.

MARTINEZ, A. 1955. Scarabaeidae nuevos o poco conocidos. V. *Mision de Estudios de Patologia regional argentina* 26: 57-71.

PETROVITZ, R. 1964. Neue *Ataenius*-Arten. *Entomologische Arbeiten aus dem Museum Georg Frey* 15: 279-285.

PETROVITZ, R. 1973. Neue Aphodiinae, Hubosorinae und Acathocerinae aus der Neotropischen Region. *Studia entomologica* 16: 141-202.

SAINT-FARGEAU, LEPELETIER DE [A], & SERVILLE [J.C.]. 1828. In Latreille: *Encyclopédie Méthodique*. Histoire Naturelle. Entomologie ou Histoire Naturelle des Crustacés, des Arachnides et des insectes. Vol.X, Pt.2, pp. 348-388.

SCHMIDT, A. 1909. Eine Serie neuer Arten und eine neue Gattung. (Fortsetzung V.). *Societas entomologica* 24: 43-44.

SCHMIDT, A. 1922. Coleoptera Aphodiinae. (Das Tierreich) 45: 1-614.

STEBNICKA, Z. T. 1985. A new genus and species of Aulonocneminae from India with notes on comparative morphology. *Revue suisse de Zoologie* 92: 649-658.

Stebnicka, Z. T. 1998. The Aphodiinae of New Guinea, Bismarck Archipelago and Solomon Islands (Coleoptera: Scarabaeoidea). *Invertebrate Taxonomy* 12: 833-895.

Stebnicka Z.T. & Howden, H.F. 1996. Australian Genera and Species in the Tribes Odontolochini, Psammodini, Rhyparini, Stereomerini and Part of the Eupariini (Coleoptera: Scarabaeoidea: Aphodiinae). *Invertebrate Taxonomy* 10: 97-170.